REMARKS

Claim 21 was amended for clarification and not to address the rejections presented by the Office Action.

The present invention is directed towards broadcast systems which can efficiently utilize hardware resources. After either an "IN" or an "OUT" allocation type, the hardware resource management unit 3031 calculates an available amount of the hardware resource by subtracting the total occupancy of the hardware resources for the programs being transmitted from the maximum value in the hardware resource utilization schedule. The available amount of the hardware resource means an amount of the hardware resource remaining after the hardware resource allocation had been performed for the video data reproduction with priority based on the editing list. (Pg. 46, lns. 15 – 23).

After the calculation of the available amount of the hardware resource, if the control program directly requests hardware resource allocation without being based on the editing list, that is, the control program requests hardware resource allocation for broadcast preparation processing, the hardware management unit 3031 requests that the hardware resource allocation unit 3061 to perform hardware resource allocation by fully utilizing the calculated available amount. (Pg. 46, ln. 24 – Pg. 47, ln. 9)

Furthermore, when processing targets with material IDs such as "CUT1" and "CUT2" which are identified as indicating the same range of data in the same video file, the driver of the SCSI card 2012 stores the targeted data that has been read from the hard disc into a cache memory. The hardware resource managing unit 3031 excludes information relating to material ID that indicates the same range of video data as already being reproduced from the hardware resource utilization schedule for the local HDD band. The data stored in the cache memory can

then be read when the same data is required for a second time, instead of requiring a transmission of the same range of data for a second time. (Pg. 53, ln. 24 – Pg. 54, ln. 13)

The Office Action rejected Claims 1-4 and 7-18 under 35 U.S.C. § 103(a) as being unpatentable over *Goode* (U.S. 6,718,552) in view of *Kasai* (U.S. 6,460,018).

Goode teaches a cable system which efficiently distributes videos to customers. It allocates channels within the broadcast spectrum to video-programming having high viewership characteristics. The remaining video-programming with low viewership characteristics are transmitted only upon demand by customers. Once a customer demands the video on demand, that program then becomes available for that customer and subsequent customers who may wish to view it. When no customers are viewing the transmitted program, then the program is no longer transmitted. (Col. 3, lns. 5 – 19).

Kasai is directed towards an efficient program production and transmission apparatus through the use of a program progress table and transmitting programs according to the program process table so that the occurrence of programs being broadcast which should not be broadcast or programs which should be broadcast not being broadcast are reduced. (Col. 1, lns. 9 – 14; Col. 2, lns. 19 – 49).

Goode does not teach or suggest "when processing targets of the plurality of transfer processes indicate a same range in a same video data file, the first allocation means does not exceptionally allocate the required amount of the hardware resource to one of the plurality of transfer processes executed in a later duration, and the process execution means executes the transfer process to which the required amount of the hardware resource is not exceptionally allocated, by accessing the cache means to read the material data instead of accessing the recording medium." The Office Action on Page 3 cites to Col. 3, lines 20 to 41 in *Goode* for the

features of the present invention. *Goode* discloses that that a video is transmitted through a transmission network 104 which includes a semi-static broadcast portion of n channels, a on-demand broadcast portion of m channels, and a narrow-cast portion of p channels. (Col. 3, lns. 21 – 28) *Goode* collects statistics from each of the subscriber stations 106 regarding the frequency of the channel usage and favorite channel selections which are used to manage the broadcast channels 220 and narrow cast channels 222. However, there is no discussion as to how Goode manages the broadcast channels 220 or the narrow cast channels 222. More specifically there is no indication in Goode that popular programming which are to be transmitted multiple times should be cached after the first transmission and the programming should be transmitted in the subsequent times using the cache instead of using the available hardware resources.

Kasai also does not teach or suggest "when processing targets of the plurality of transfer processes indicate a same range in a same video data file, the first allocation means does not exceptionally allocate the required amount of the hardware resource to one of the plurality of transfer processes executed in a later duration, and the process execution means executes the transfer process to which the required amount of the hardware resource is not exceptionally allocated, by accessing the cache means to read the material data instead of accessing the recording medium." Kasai teaches using a program progress table for indicating which program is broadcast when using which program components and the use of randomly accesble recording media. (Col. 10, lns. 32 – 34; Col. 9, lns. 23 - 41). The randomly accessible recording media is used to store edited materials which are outputted to VTR 21. (Col. 9, lns. 23 – 26) However, there is no indication that *Kasai* discloses analyzing a program to determine whether it will be broadcast multiple times and if it is, to store the program in a cache such that hardware resources do not need to be allocated to it. There is no analysis within *Kasai* as to whether to allocate

hardware resources to the program, and more specifically to not allocate resources when the program is going to be played twice since the program will be stored in a cache.

In contrast, in the present invention, when processing targets with material IDs such as "CUT1" and "CUT2" are identified as indicating the same range of data in the same video file, the driver of the SCSI card 2012 stores the targeted data that has been read from the hard disc into a cache memory. The data stored in the cache memory can be read when the same data is required for a second time. The hardware resource managing unit 3031 excludes information relating to material ID that indicates the same range of video data as already being reproduced from the hardware resource utilization schedule for the local HDD band. (Pg. 53, ln. 24 – Pg. 54, ln. 13) Thus, more hardware resources are free for allocation since the program relating to the material ID that indicates the same of video data is indicated as "already reproduced" and thus not requiring allocation of hardware resources.

Goode also does not teach or suggest "second allocation means for allocating, to one or more background transfer processes that are processes other than the transfer processes for broadcast, as much amount of the hardware resource as possible, so as not to exceed the calculated available amount." The Office Action on page 3 to Column 4, lines 16 to 32 and channels 5, 6, and 10 in Goode. Channels 5, 6, and 10 are dynamically allocated "on-demand channels or narrow cast channels." Channels 5, 6, and 10 only display channels when they are requested by the user. However, when a particular channel is being utilized, there is no indication in Goode that the remaining channels utilize as much of the hardware resource as possible. When channel 5 is utilized, Channels 6 and 10 may not be utilized since the channels are only utilized when a user requests the channel. (Col. 4, lns. 16 – 32) However, even if Channels 6 and 10 are utilized and there is excess hardware resource, there is no indication that

other processes other than the transfer process for broadcast are allocated the remaining hardware resources. There is no discussion within *Goode* regarding hardware resource allocation for processes other than transfer process. There is also no indication that *Kasai* remedies the deficiencies of *Goode*.

In contrast, in the present invention, after the hardware resources have been secured for data transfer for reproduction processing, the hardware resource management unit 3031 allocates the remaining available amount to broadcast preparation processing. (Pg. 47, ln. 9 – Pg. 48, ln. 2) Thus, even processes which have less urgency than reproduction processing such as broadcast preparation processing, can utilize the hardware resources. This can improve the utilization efficiency of the hardware resources. (Pg. 48, lns. 2 – 5)

Our recent discussion with Pinchus Laufer in the Office of Patent Legal Administration, who was involved in writing the Examination Guidelines for Determining Obviousness under 35 USC §103 in view of the Supreme Court decision in *KSR International Co. vs. Teleflex, Inc.* verified that the KSR decision still required a specific rationale that could not be based on hindsight for purportedly combining the elements in the prior art to meet an invention defined in the patent claims.

Mr. Laufer incorporated the following from the existing MPEP into the Guidelines.

As noted in the MPEP at §2143.02:

> A rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 (2007); *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282, 189 USPQ 449, 453 (1976); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 62-63, 163 USPQ 673, 675 (1969); *Great*

Atlantic & P. Tea Co. v. Supermarket Equipment Corp., 340 U.S. 147, 152, 87 USPQ 303, 306 (1950). (underline added)

All arguments for patentability with respect to Claim 1 are repeated and incorporated herein for Claims 10 and 16.

With respect to Claim 2 *Kasai* does not teach or suggest "wherein the available amount calculation means calculates the available amount of the hardware resource, every time when one of a start time and an end time of each duration shown by the duration information is reached." *Kasai* teaches a program table which indicates a start time, an end time, a broadcasting duration for each program. However, the program table only discloses how long each program is, and not how much hardware resources the program consumes and/or how much hardware resources are available. There is no teaching within Kasai that it registers an amount of bandwidth all of the programs utilize, a total amount of bandwidth available, and an amount of bandwidth available while the programs utilize the bandwidth. There is also no indication that *Goode* teaches the recited features of the present invention.

As seen in FIG. 10 in the present specification, the hardware resource management unit 3031 generates a hardware resource utilization schedule such as hardware resource utilization schedule 7000 based on editing list 5001 for the hardware resources. (Pg. 34, ln. 19 – Pg. 36, ln. 4; Pg. 44, lns. 16 - 23) As seen in FIG. 13, the hardware resource management unit 3031 also determines the amount of hardware resources used for broadcast transmissions and as a result of the hardware resources being used for broadcast transmission, the remaining hardware resources. (Pg. 45, ln. 12 – Pg. 46, ln. 24). After the calculation, if the control program requires hardware resource allocation for broadcast preparation processing, the hardware resource management unit 3031 requires the hardware resource allocation unit 3061 to perform hardware resource

allocation by fully utilizing the remaining available hardware resources. (Pg. 46, ln. 24 – Pg. 47, ln. 8) Thus, the present invention not only determines the amount of hardware resources utilized for program transmission, but also the amount of hardware resources remaining during the program transmission.

With respect to Claim 7, *Kasai* does not disclose "transfer complete time display means for obtaining an amount of data to be transferred by each background transfer process, calculating a time at which the background transfer process is to be completed, based on the bandwidth allocated by the second allocation means, and displaying the calculated time." *Kasai* discloses displaying a list of program and their playback duration. (Col. 50, lns 39-55). However, *Kasai* does not disclose how much time it takes to transfer the programs, and more specifically how long it takes to transfer the program based on the bandwidth allocation. Disclosing when a program is going to be displayed and how long it takes to playback a program is different from how long it takes for the program to be transferred in light of the bandwidth allocation. *Goode* also does not solve the deficiencies of *Kasai*.

In contrast, in the present invention, if the hardware resource management unit 3031 is requested to perform hardware resource allocation for an access to a hard disc with a specified data transfer amount of broadcast preparation processing, the hardware resource management unit 3031 can calculate the time at which the specific data transfer is to be completed, and display the calculated time on the monitor. (Pg. 56, lns. 10 – 17)

With respect to Claim 9, *Kasai* fails to teach or suggest "wherein the available amount calculation means calculates the available amount, every time when one of (a) a time that is a predetermined duration before a start time of each duration shown by the duration information and (b) an end time of each duration shown by the duration information is reached." The Office

Action on Page 8 cites to FIGS. 15a and 15b along with Column 28, lines 11 to 46 in Kasai for the features of the present invention. However, *Kasai* discloses a program table indicating the start and end time of the program which can be adjusted for programs which may be delayed. However, the start and end time are not necessarily indicative of the amount of hardware resources available.

In contrast, in the present invention, hardware resource management unit 3031 calculates an available amount of hardware resource before an "IN" and after an "OUT" allocation type. (Pg. 45, ln. 18 – Pg. 46, ln. 23).

With respect to Claim 20, *Goode* fails to disclose "a hardware resource utilization schedule including . . . a maximum value indicating the maximum amount of resource available for a hardware specified by the resource ID, and an occupancy indicating an amount of the hardware resource used for reproduction of the processing target specification information." Goode teaches the allocation of many video-programming to a limited amount of channels in order to increase an efficiency of the usage of the channels. However, there is no indication that a schedule is used to determine the maximum amount of resources available for a specific hardware resource and furthermore, how much of that specific hardware resource is being used. (Col. 2, ln. 50 – Col. 3, ln. 19) Furthermore, it is unlikely that a schedule would be created because such usages in *Goode* are dynamic and while the video programming in the remaining channels are available, they are not actually transmitted unless specifically requested by a customer. *Kasai* does not remedy the deficiencies of *Goode*.

In contrast, as seen in FIG. 7, hardware utilization schedule 7000 includes a maximum value 7002 and an occupancy 7005. The maximum value 7002 shows a maximum value of the amount of each hardware resource identified by resource ID 7001, which is determined in

advance for each hardware resource. Occupancy 7005 shows a bandwidth to be occupied for the video data transfer. (Pg. 29, ln. 16 – Pg. 30, ln. 24; FIG. 7)

The Office Action rejected Claims 5 and 6 under 35 U.S.C. § 103(a) as being unpatentable over *Goode* in view of *Kasai* and *Mitaru et al.* (U.S. 6,571,351).

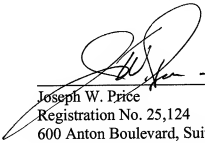
All arguments for patentability with respect to Claim 1 are repeated and incorporated herein for Claims 5 and 6.

Claims 2-9, 11-15, 17-21 depend from and further define Claims 1, 10, and 16 and are thus patentable, too.

If there are any questions with regards to these amendments the undersigned attorney can be contacted at the below listed telephone number.

Very truly yours,

SNELL & WILMER L.L.P.



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